

What is claimed is:

1. A method to backup data from a storage environment, comprising:
receiving storage extents associated with a frozen image representing the
data as it resides in the storage environment;
issuing operating system input/output (I/O) operations to one or more storage
devices housing the frozen image using the storage extents to acquire the data; and
issuing one or more of the operating system I/O operations to a storage
media to write the data to the storage media.
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2. The method of claim 1, wherein in issuing the operating system I/O
operations, the operations are issued from a first computing device which is separate
from second computing device wherein the frozen image and storage extents are
created.
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3. The method of claim 1, further comprising:
issuing a configuration identification operation to determine if a number of
the storage extents have been altered within the storage environment after the frozen
image is created and before issuing the operating system I/O operations; and
20 receiving only the number of storage extents which were altered, if at all,
before proceeding to issue the operating system I/O operations.
4. The method of claim 1, wherein in receiving the storage extents, the storage
environment is interconnected by a storage area network (SAN).
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5. The method of claim 1, wherein in receiving the storage extents, the data is
at least one of a file, a set of files, a file system, a set of file systems, a volume, and a
set of volumes.

6. The method of claim 1, wherein in issuing one or more of the operating system I/O operations to the storage media to write the data to the storage media, the storage media is a non-volatile storage media.

5 7. The method of claim 1, wherein in issuing one or more of the operating system I/O operations, any error processing associated with issuing the I/O operations is performed by the operating system.

8. A method to backup data within a storage environment, comprising:
10 identifying target data to backup within the storage environment from a first computing device;
producing a frozen image of the target data on the first computing device;
decomposing the frozen image into physical storage addresses on the first computing device;
15 transmitting the physical storage addresses to a second computing device;
and
issuing operating system provided input/output (I/O) operations from the second computing device using the physical storage addresses to copy the target data to a non-volatile storage.
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9. The method of claim 8, wherein in identifying the target data, the target data is a file, a set of files, a file system, a set of file systems, a volume, or a set of volumes.

25 10. The method of claim 8, wherein in identifying the target data and transmitting the storage addresses, the first and second computing devices are interfaced with a storage area network (SAN).

11. The method of claim 8, wherein in issuing the operating system provided I/O operations, the I/O operations include a read operation and a write operation.

12. The method of claim 8, wherein in issuing the operating system provided I/O
5 operations, the non-volatile storage is a magnetic tape.

13. The method of claim 8, wherein in issuing the operating system provided I/O operations, the operating system is Unix, Windows 2000, Windows XP, Windows NT, Linux, HP-UX, AIX, Solaris, Netware, or OS/2.

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14. The method of claim 8, wherein in issuing the operating system provided I/O operations, a read operation requires parameters derived from a number of the storage addresses, wherein the parameters include a storage device identifier, a starting block within a storage device identified by the storage device identifier, and
15 a total number of blocks to read within the storage device beginning at the starting block.

15. A data backup system, comprising:
a storage area network (SAN) having a plurality of storage devices, wherein
20 one or more of the storage devices house at least a portion of target data which is to be backed up within the SAN;

a first computing device interfaced to the SAN, wherein the first computing device creates a frozen image of the target data from one or more of the storage devices housing at least a portion of the target data and from volatile memory
25 associated with the first computing device and having any remaining portion of the target data not housed in one or more of the storage devices, and wherein the first computing device creates a storage map of the frozen image, the storage map includes storage device identifiers, start blocks, and numbers of blocks to process;

a second computing device interfaced to the SAN, wherein the second computing device receives the storage map from the first computing device; and
5 a backup set of executable instructions that backs up the target data within the SAN by using the map to issue storage operations to read the target data and write the target data to a computer readable medium.

16. The system of claim 15, wherein the backup set of executable instructions uses operating system provided storage read operations and storage write operations to read and write the target data.

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17. The system of claim 15, wherein the second computing device issues a request to check a configuration identifier and to thereby perform a remap operation for the first computing device when the target data within the storage environment is altered to be inconsistent with the frozen image, and the first computing device 15 receives from the second computing device changes associated with the remap operation.

18. The system of claim 17, wherein the backup set of executable instructions uses the changes associated with the remap operation to backup the changes on the 20 computer readable medium.

19. The system of claim 15, wherein the computer readable medium is a removable medium and is an optical disk, magnetic disk, magnetic tape, or magnetic cartridge.

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20. The system of claim 15, wherein the frozen image is created by flushing the volatile memory of the first computing device, which is a cache memory, to one or more of the storage devices and locking all write operations occurring against the target data until the frozen image is created.